CLAIMS

1) A method for detection of end stops of a synchronous multi-phase gear motor operated in "stepped" mode, using the measurement of the sum of the currents circulating in each of the N phases of the gear motor, characterized in that the end-stop detection threshold is calculated relative to the evolution of the sum of the said currents.

2) A detection method according to claim 1, characterized in that the measurement of the sum of the currents circulating in each of the N phases of the gear motor is obtained by sampling.

3) A detection method according to claim 1 or 2, characterized in that the sampled current values are processed by a mathematical or statistical operation and in that the end-stop detection threshold is determined relative to the result of this processing.

4) A detection method according to claim 1, 2 or 3, characterized in that it includes a step of detecting an end stop for discrimination between a zone of synchronous operation of the gear motor in micro-stepped mode and a zone of arrival at an end stop.

5) A detection method according to claim 1, 2 or 3, characterized in that it is applied to two-phase stepper gear motors.

6) A detection method according to claim 1, 2 or 3, characterized in that it is applied to three-phase stepper gear motors.

7) A detection method according to claim 1, 2 or 3, characterized in that it is applied to gear motors of automobile air-conditioning valves.

8) A detection method according to claim 1, 2 or 3, characterized in that it includes a step of determining the maximum torque applicable by the gear motor.

9) A detection method according to claim 1, 2 or 3, characterized in that it permits includes a step of determining the loss of synchronization of the rotor of the gear motor.

10) A detection method according to claim 1, 2 or 3, characterized in that it is applied to stepper gear motors having a reduction ratio of 1 to r, where r is a finite real number.

11) A detection method according to claim 1, 2 or 3, characterized in that it is applied to stepper gear motors driven in micro-step mode with m micro-steps per step, where m is an integral number greater than or equal to 1.

12) A multi-phase gear motor provided with a stepper motor and an electronic circuit for operation in "micro-stepped" mode, characterized in that it comprises a means for detecting an end stop consisting of a circuit for measuring the total current consumed by the N phases of the motor.

13) A multi-phase gear motor according to the preceding claim, characterized in that the said end-stop detection means comprises a sampling resistor R1 and a means of measuring, in the said resistor, the total current consumed in the sum of the N phases of the multi-phase motor.